

 <p>Financial Assistance Award</p> <p>DENALI COMMISSION 510 L Street, Suite 410 Anchorage, Alaska 99501 (907) 271-1414 (phone) (907) 271-1415 (fax) www.denali.gov</p>		Award Number	01221-00																																																																												
		Award Title	Wales Diesel-off High Penetration Wind System																																																																												
		Performance Period	November 1, 2009 through December 30, 2011																																																																												
Authority 112 Stat 1854		CFDA Number 90.100																																																																													
Denali Commission Finance Officer Certification		Jennifer Price 02/25/2010																																																																													
		Recipient Organization & Address University of Alaska Fairbanks PO BOX 757880 3295 COLLEGE ROAD 109 ASC Fairbanks, AK 99775-7880 Phone: (907) 474-6264 Recipient DUNS # 615245164 TIN # 926000147																																																																													
Cost Share Distribution Table																																																																															
<table border="1" style="width: 100%; border-collapse: collapse; text-align: center;"> <thead> <tr> <th rowspan="2">Accounting Code</th> <th colspan="2">New Funding</th> <th colspan="2">Prior Period Funding</th> <th rowspan="2">Total</th> </tr> <tr> <th>Denali Commission</th> <th>Other Contributors</th> <th>Denali Commission</th> <th>Other Contributors</th> </tr> </thead> <tbody> <tr> <td>95670000AL</td> <td>\$155,000.00</td> <td></td> <td>\$0.00</td> <td></td> <td>\$155,000.00</td> </tr> <tr><td></td><td>\$0.00</td><td></td><td>\$0.00</td><td></td><td>\$0.00</td></tr> <tr><td></td><td>\$0.00</td><td></td><td>\$0.00</td><td></td><td>\$0.00</td></tr> <tr><td></td><td>\$0.00</td><td></td><td>\$0.00</td><td></td><td>\$0.00</td></tr> <tr><td></td><td>\$0.00</td><td></td><td>\$0.00</td><td></td><td>\$0.00</td></tr> <tr><td></td><td></td><td>\$0.00</td><td></td><td>\$0.00</td><td>\$0.00</td></tr> <tr><td></td><td></td><td>\$0.00</td><td></td><td>\$0.00</td><td>\$0.00</td></tr> <tr><td></td><td></td><td>\$0.00</td><td></td><td>\$0.00</td><td>\$0.00</td></tr> <tr><td></td><td></td><td>\$0.00</td><td></td><td>\$0.00</td><td>\$0.00</td></tr> <tr><td></td><td></td><td>\$0.00</td><td></td><td>\$0.00</td><td>\$0.00</td></tr> <tr> <td>Total</td> <td>\$155,000.00</td> <td>\$0.00</td> <td>\$0.00</td> <td>\$0.00</td> <td>\$155,000.00</td> </tr> </tbody> </table>				Accounting Code	New Funding		Prior Period Funding		Total	Denali Commission	Other Contributors	Denali Commission	Other Contributors	95670000AL	\$155,000.00		\$0.00		\$155,000.00		\$0.00		\$0.00		\$0.00		\$0.00		\$0.00		\$0.00		\$0.00		\$0.00		\$0.00		\$0.00		\$0.00		\$0.00			\$0.00		\$0.00	\$0.00			\$0.00		\$0.00	\$0.00			\$0.00		\$0.00	\$0.00			\$0.00		\$0.00	\$0.00			\$0.00		\$0.00	\$0.00	Total	\$155,000.00	\$0.00	\$0.00	\$0.00	\$155,000.00
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Signature of Authorized Official - Denali Commission Electronically Signed		Typed Name and Title Joel Neimeyer Federal Co-Chair																																																																													
		Date 02/18/2010																																																																													

AWARD ATTACHMENTS

University of Alaska Fairbanks

01221-00

1. Award Conditions - Wales Diesel-Off High Penetration Wind System

***Award Conditions to the Financial Assistance Award
Between the Denali Commission and University of Alaska Fairbanks, Alaska
Center for Energy and Power
For Wales Diesel-Off High Penetration Wind System
Award No. 01221
December 2009***

1. Scope of Work

This award provides \$155,000 to the University of Alaska Fairbanks (UAF), Alaska Center for Energy and Power (ACEP) for the Wales Diesel-Off High Penetration Wind System. Match funding is not required for this project.

Background:

In 1995 the Alaska Energy Authority (AEA), Kotzebue Electric Association (KEA), Alaska Village Electric Cooperative (AVEC), and the National Renewable Energy Laboratory (NREL) implemented a high penetration wind diesel hybrid power system to reduce diesel consumption for Alaskan communities. This project was intended to be a technology demonstration and a pilot project for commercial replication in other Alaskan communities. Funding was provided by the U.S. Environmental Protection Agency, the U.S. Department of Energy, the Alaska Science and Technology Foundation, as well as KEA and AVEC. NREL created the control systems which were required to integrate system components. KEA and AVEC provided project management including site selection, permitting, and wind resource assessment. The project was commissioned in Wales in the spring of 2001.

Low and medium penetration systems are, at this point, a mature technology. High penetration systems, however, still have many problems - especially when installed with the capacity to operate in a diesel-off capacity. There are no such high penetration wind-diesel systems with an average load of over 300kW in the world. Alaska has two high penetration systems, including the system installed at Wales as well as a TDX system installed in Saint Paul Island. The Wales system is composed of two Cummins LTA10 diesel gen-sets, one Allis-Chalmers 3500 diesel gen-set, two 65-kW Entegreity wind turbines, and AC/DC rotary power converter, a 130 Ah SAFT NiCad battery bank, two electric boilers (one local and one remote) serving as secondary loads, and a Programmable Logic Controller (PLC)-based main system controller. The system was designed to have an original capacity factor of 57.5% and utilizes short term energy storage to ensure power stability.

Project Scope/Budget:

The ultimate goal of this project is to revive the wind diesel system in Wales, Alaska so the community can achieve a 50% reduction in diesel consumption. In doing so, the diesel-off configuration can then be replicated in other communities.

The project scope is broken in to three phases:

Phase 1 – Project Design and Engineering (\$42,000)

KEA and AVEC engineers will review and recommend system improvements to the power plant, first to conduct a review of system performance. KEA and AVEC technicians will accompany the engineers to evaluate the system in its entirety to ensure that system relaying and protective controls are operational and to upgrade the wind turbine programming and systems to install the most current components. A report will be produced specifying necessary work to allow Wales to operate in a diesel-off mode.

Phase 2 – Installation (\$76,700)

Purchase and install new radio links at the power plant, school, and wind site; a dedicated satellite connection for the power plant; new PLCs for the energy storage system, school heating system, power plant, and wind site. Other work may include replacing the existing servers at the power plant and the wind site. Equipment will be ordered after the initial review to be installed in Wales upon arrival. After the equipment is installed data collection will begin.

Phase 3 – Data Analysis (\$36,300)

SCADA system at Wales to include a system allowing for real time monitoring and remote control of the turbines and interconnections with the turbine controllers. Concurrent data collection from met tower sensors and measure numerous power quality parameters including real and reactive power, voltage, and current on each phases, voltage and current total harmonic distortion, frequency deviation, and voltage imbalance. This data will be collected, analyzed, and reported on a monthly basis throughout the duration of this proposal by KEA, AVEC, or another entity of their choosing. As system performance is studied, further recommendations will be made as needed to optimize the operation of the system.

Changes to any budget related activities are allowable with written concurrence by the Denali Commission. This work will be accomplished by KEA in conjunction with AVEC. Other entities will be informally involved as needed such as NREL and ACEP.

All Commission funding is intended for use for the scope of work identified in the Award document only. Any balance of funds remaining after the full scope of work has been completed will be returned to the Denali Commission.

2. Milestones

The following milestones are identified as the major steps to be completed as part of the project. “Planned” dates for the first milestone are included here. As part of each progress report, recipients shall update the progress toward meeting these milestones (see section 7, Reporting).

Milestone	Planned		Actual		Units	Total Cost At Completion
	Start	End	Start	End		

	Date	Date	Date	Date		
In-Progress	11/01/2009	09/30/2011			0	\$0.00
Project Close-out	10/01/2011	12/30/2011			0	\$0.00

3. Award Performance Period

The Award performance period is November 1, 2009 through September 30, 2011. This is the period during which Award recipients can incur obligations or costs against this Award.

4. Direct and Indirect Costs

The cost principles of OMB A-21 are applicable to this Award. Indirect costs up to 5% are allowable toward this project and funded through Award #1194. Please refer to the cost principles regulations for specific details on other allowable charges under this Award.

5. Budget and Program Revisions

The Administrative Circular, 2 CFR Part 215, applies to this Award. Please refer to the Administrative Circular for specific details on revisions to this Award. The Administrative Circular requires that ACEP will inform the Commission in writing (e-mail, letter, or report) at the earliest possible date of any unanticipated project cost overrun, project schedule delays, or changes in the project scope or changed site conditions.

6. Payments

Payments under this Award will be made by electronic transfer in response to a "Request for Advance or Reimbursement", Standard Form 270 (SF-270) submitted by ACEP. Requests for reimbursements may be made as needed. The SF-270 must be submitted to the Denali Commission via fax, e-mail (finance@denali.gov) or mail in order for payment to be processed. The form is available on the OMB website: http://www.whitehouse.gov/OMB/grants/grants_forms.html. Payments shall be made in accordance with 2 CFR Part 215. Please contact the Denali Commission's Finance Specialist at (907) 271-1414 for further information about submitting this form. **No interest will be accrued on these funds.**

7. Reporting

Two forms of project reporting are required under this Award, listed below. ACEP shall submit reports using the Denali Commission's on-line Project Database System, available at www.denali.gov. If there are technical limitations which may prevent the recipient from meeting this requirement, please contact the Program Manager listed in this agreement.

- a. **Progress Reports** shall be submitted on a quarterly basis. The first reporting period is November 1, 2009 to March 31, 2010 and quarterly thereafter. Reports are due within 30 days of the end of the reporting period. Progress reports shall include the following:
 - i. Total project funding, including both Denali Commission funding and other project funding sources.
 - ii. The total project expenditures for the project as of the end of the reporting period, including both Denali Commission and Other funding sources.
 - iii. Updated schedule and milestone information as identified in the Scope of Work.
 - iv. Narrative summary of the project status and accomplishments to date, and address the following questions: is the project on schedule, is the project on budget, and what actions are planned to address any project problems.
 - v. For minor repair and renovation projects or other non-construction projects, pictures should be provided of before and after, or photos that are representative of the funded activity, to the extent possible. Photos shall be provided in a digital format as part of the on-line report. A short description of the activity and names of those in the photos shall also be provided.
- b. **Federal Single Audits** shall be submitted annually, when required. In accordance with OMB Circular A-133, which requires [subpart 200] "Non-Federal entities that expend \$500,000 or more in a year in Federal awards shall have a single or program-specific audit conducted for that year in accordance with the provisions of this part [subpart 205]. The determination of when an award is expended should be based on when the activity related to the award occurs."

Recipients shall also submit single audits to the Federal Clearinghouse as designated by OMB. Information can be found on the following web-site:

<http://harvester.census.gov/sac/>

8. *Project/Award Close-Out*

The project close-out report shall be completed within 90 days of the end of the Award performance period or within 90 days of the completion of the project, whichever is earlier. Recipients must also draw down any remaining funds for expenditures incurred under this award during this 90-day period.

The project close-out report shall be submitted on-line through the Denali Commission's on-line Project Database System, available at www.denali.gov. The project close out will require the recipient to submit the following information:

- a. Final data for each item listed in paragraph 7(a) "Progress Reports".

- b. Final project expenditures itemized by the following categories: planning & design; materials & equipment; freight; labor; project administration/overhead and other expenses.
- c. Acknowledgement of support: For all construction projects, the Award recipient shall display a sign that acknowledges the Government's support for the project(s) developed under this Award. The Commission will provide an appropriate sign. The Award recipient must request an indoor and/or an outdoor sign from the Commission office. Pickup or delivery of the sign can be arranged at that time.
- d. Acknowledgement of support: For all non-construction projects, the Award recipient shall include an acknowledgement of the Government's support for the project(s) developed under this Award. The allowable format shall be use of Denali Commission logo on any printed materials referencing the emerging technologies program and mention in any public presentations.
- e. Costs associated with this requirement shall be paid out of the project funding received by the Award recipient from the Denali Commission.

9. Public Policy Laws and Assurances

Award Recipients are required to comply with the public policy laws and assurances on Standard Forms SF 424b. This form must also be signed by a certifying official of the organization. Some of the laws are highlighted below for your reference.

To the maximum extent practicable, considering applicable laws, Funding Recipients shall accomplish the project contemplated by the Award using local Alaska firms and labor.

No portion of this award may be used for lobbying or propaganda purposes as prohibited by 18 U.S.C. Section 1913 or Section 607(a) of Public Law 96-74.

Project level environmental reviews in accordance with the National Environmental Policy Act (NEPA) and the National Historic Preservation Act (NHPA) are required for each project undertaken with Denali Commission funds.

10. Non-Compliance with Award Conditions

Recipients not in compliance with the terms and conditions of this Financial Assistance Award will be notified by the Denali Commission. The Denali Commission will work with the recipient to identify the steps necessary to bring them back into compliance, and will establish an appropriate time frame for the corrections to be made. If the corrections have not been made by the deadline, the Denali Commission reserves the right to either suspend or unilaterally terminate the Financial Assistance Award for non-performance.

11. Program Manager, Financial Manager & Other Contact Information

Denali Commission	Alaska Center for Energy and Power
Denali Daniels Program Manager 510 L Street, Suite 410 Anchorage, AK 99501 Phone: 907-271-1189 Fax: 907-271-1415 E-mail: ddaniels@denali.gov	Gwen Holdmann Project Manager 451 Duckering Building Fairbanks, Alaska 99775-5880 Phone: 907-590-4577 Fax: 907-474-6686 Email: gwen.holdmann@uaf.edu
Betty Sorensen Grants Administrator 510 L Street, Suite 410 Anchorage, AK 99501 Phone: 907-271-3415 Fax: 907-271-1415 E-mail: bsorensen@denali.gov	Maggie Griscavage Financial Contact 3295 College Road, 109 ASC Fairbanks, AK 99775-7880 Phone: 907-474-6446 Fax: 907-474-5506 Email: gmgriscavage@alaska.edu

12. Other Project Specific Paragraphs

In addition to reporting quarterly, ACEP shall meet twice annually with the Commission to report lessons learned and project status.